ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

November 25, 1958
Vol. 20... No. 8

Dear Sir:

Nuclear Instrumentation Section is new group formed within the Electronic Industries Association by manufacturers of nuclear instruments. Chairman is Nicholas Anton, president of Anton Electronic Laboratories, Inc., 1226 Flushing Ave., Brooklyn 37, N.Y. General meeting of the new Section will be held December 5, in New York. Information on the group's objectives, etc., may be obtained from Mr. Anton, or from Peter H. Cousins, Electronic Industries Association, 1721 Desales St., N.W., Washington 6, D.C. (Other MANUFACTURERS' NEWS, p. 4 this LETTER.)

Contract to investigate the chemistry of long-lived radioactive fission products has been awarded Vitro Laboratories division of Vitro Corp. of America by Atomic Energy division of Phillips Petroleum Co. Principal objective of the research program is to develop safe and effective storage methods for "hot" fission products resulting from the burn-up of nuclear fuels used in the material testing reactor and the engineering test reactor operated by Phillips. (Other CONTRACTS AWARDED, BIDS ASKED, p. 3 this LETTER.)

Organizations in Japan interested in atomic energy development are listed in new 172 page directory issued by the Japan Atomic Industrial Forum. List was compiled by the Forum following survey it made in April of private, governmental and educational organizations in that country. Copies in English may be obtained for $5.00 each from the Forum at 1-1 Shiba Tamurache, Minato-ku, Tokyo, Japan. (Other BOOKS, PUBLICATIONS, p. 2 this LETTER.)

Thirty U. S. colleges and universities have received some $326,510 in grants from the USAEC to help expand their laboratory facilities for training in radiation biology and the use of radioisotopes in such fields as agriculture, veterinary medicine, medicine and pharmacy, public health and biology. This is the USAEC's fifth series of life science grants made since October, 1957, when the program started. Sixth series will be announced in early Spring, 1959; applications should be made before January 1, 1959 by colleges and universities interested in such grants. Inquiries should be sent to Division of Biology and Medicine, USAEC, Washington 25, D.C.

Dual purpose linear accelerator, rated at 6-million electron volts, with applications in both medical therapy and research fields, is now being marketed by High Voltage Engineering Corp., Burlington, Mass. In clinical applications its x-ray output of 200 roentgens per minute at 100-cm. allows the machine to be used with target-to-skin distances that protect against skin damage, while its high depth dose allows treatment times to be short enough to minimize patient discomfort. When converted to electron output (with the conversion unit furnished) the machine will supply up to 500 watts at energies from 2 to 7.5 Mev, for sterilization of surgical materials, for biophysics, biological and cancer research, etc. It is said to produce an electron beam less than 5 mm. in diameter on the x-ray target, enabling sharp field definition. (Other PRODUCT, PROCESS, INSTRUMENT NEWS, p. 4 this LETTER.)

Copyright, Atomic Energy Newsletter. All rights reserved.

ATOMIC ENERGY BUSINESS NEWS ...

FIRST PRIVATELY-OWNED NUCLEAR REACTOR IN NEW YORK NOW IN OPERATION:- Low power research reactor, first such privately-owned facility in New York, is now in operation at the Pawling, N.Y., laboratories of Nuclear Development Corp. of America, White Plains, N.Y. It is a prototype of a teaching and research reactor which NDA has developed for use by universities in their physics programs. The reactor uses heavy water for neutron moderation and 40 plate-type uranium-aluminum alloy fuel elements as its core.

UTILITY GROUP PROPOSES TO CONSTRUCT GAS-COOLED REACTOR POWER PLANT:- Proposal has been made to USAEC by a group of more than fifty U. S. utility companies, headed by Philadelphia Electric Co., to construct a 30,000 electrical kw gas-cooled nuclear reactor power plant. Proposal of the utilities, acting in a non-profit corporation known as High Temperature Reactor Development Associates, Inc., is to put up $24,500,000 for construction of the plant; USAEC is to furnish $14,500,000 in research and development assistance, and waive nuclear fuel charges for a five-year period. The reactor, of General Atomic div. of General Dynamics Corp. design and construction would use thorium and highly enriched uranium as fuel, graphite as moderator, and helium for cooling. The plant would be built within the utility system of Philadelphia Electric, with operation late in 1962 or early 1963. Engineer-constructor would be Bechtel Corp.; Westinghouse Electric would supply the plant's electric generating system, including the turbine and associated equipment.

PROGRESS ON NUCLEAR POWERED AIRCRAFT OUTLINED:- The many groups working in the U.S. on nuclear power flight are "on the threshold of success" and would "soon be ready to embark on an experimental flight development phase" leading to the first model, M/G Donald J. Keirn, chief of the aircraft reactors branch of the USAEC and the U.S. Air Force, declared in a speech last week in Washington before the American Ordnance Association. He said that the experimental flight development program would be followed by construction of a prototype aircraft. Gen. Keirn said he would try to get additional funds from Congress for the program; thus far, in the thirteen year program some $700 million have been spent. Conflicting and ill-considered sientific advice has delayed the program, he noted. Such advice, "based on insufficient factual considerations", has been offered by various scientific committees, he stated.

SALES CAMPAIGN ON TRAINING & RESEARCH REACTOR INAUGURATED:- A campaign to sell its 2,000 kw pressurized water skid-mounted "packaged" nuclear reactor plant to utility companies for training and research has been started by Alco Products, Inc., New York. The firm is promoting the reactor plant to utility companies on the basis of its low-cost, quick-installation, and relatively small size. William S. Morris, company president, pointed out that the firm's portable plant is based on its experience in building the prototype Army package power reactor, which has been operating at Fort Belvoir, Va., for some two years. Mr. Morris noted that if Alco could get orders for at least 10 duplicate reactor generating plants from as many utilities, shop-fabrication would make the cost "very reasonable".

NEW BOOKS & OTHER PUBLICATIONS...

Nuclear Reactors for Power Generation. E. Openshaw Taylor, editor. Based on an advanced lecture course at Heriot-Watt College, Edinburgh, Scotland. Sections, each contributed by an authority, cover nuclear physics, physical basis of reactor design, types of reactors, etc. 144 pages. --Philosophical Library, 15 E. 40th St., New York 16, N.Y. ($7.50)

Minerals Yearbook, Vol. 1, 1956. U. S. mineral industries during 1956; chapters cover uranium, thorium, zirconium, etc. 1409 pages. --Sup't. of Documents, Washington 25, D.C. ($4.50)

Environmental Contamination from Weapon Tests. No. HASL-42. 359 pages. ($3.50)..... Bibliography on Semiconductor Nuclear Radiation Detectors. 9 pages. No. ORNL-2583. (50¢). --Office of Technical Services, Wash. 25, D. C.

NOTES:- Prepublication period for the Proceedings of the Second UN Geneva Conference, during which complete sets may be ordered from U.N., Publication Sect., New York, N.Y., at a special price, has been extended to Jan. 31, 1959. Until Jan. 31, the 33 volumes of the English edition may be ordered for $435.00, £155, or 1,860 Swiss francs. This special prepublication price is some $70 less than the regular price of the set. (Publication of the individual volumes is now underway, with volumes 1 and 2 already issued and volume 3 to be available shortly.)

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

BIDS ASKED, CONTRACTS AWARDED...on nuclear projects...

BIDS ASKED:- Bids for construction of addition to the central research laboratory at Oak Ridge are to be asked by the USAEC's Oak Ridge, Tenn., office on Dec. 1st, with bid opening scheduled for about Jan. 15, 1959. The work, which will double the size of the laboratory, will include a two-story fifth wing and a two-story, three-wing laboratory building adjacent to and connected with the main building. A. M. Kinney, Inc., Cincinnati, Ohio, is doing architect-engineer services in connection with the project.

CONTRACTS AWARDED:- On bid of $1,587,000 Shaw & Estes, Inc., Dallas, Texas, has received USAEC contract for Phase III construction of the plutonium recycle test facilities at Hanford Works, Richland, Wash. Firm was lowest of seven bids on the job.

Proposal of Sargent & Lundy, Chicago, for a design study of a heavy water moderated nuclear power plant, has been selected by the USAEC. Fifteen proposals had been submitted in response to the USAEC's invitation issued last August. The firm will use Nuclear Development Corp., of America, White Plains, N.Y., as nuclear design subcontractor. A comparative evaluation of the technical feasibility and economics of various heavy water moderated reactor concepts capable of using either natural or slightly enriched uranium as fuel will be made. Based on this evaluation, the plant concept and size will be determined, and a preliminary design and cost estimate for a prototype reactor power plant will be prepared. Contractor will be required to submit the study to the Commission by Mar. 1, 1959; the Commission, in turn, must report to the Joint Congressional Committee on Atomic Energy by April 1, 1959.

Contract has been awarded by the USAEC to Ohio Injector Co., Wadsworth, Ohio, to develop a device for controlling the sodium coolant in fast breeder nuclear power reactors. The firm manufactures iron, steel, and bronze valves and supplies the chemical processing and other industries.

Production has been started by Sylvania-Corning Nuclear Corp., Bayside, L.I., N.Y. on three contracts for the manufacture of nearly 100 nuclear fuel elements. The contracts are for nuclear fuel elements for research reactors at Pennsylvania State University, University Park, Pa.; University of Florida, Gainesville; and McMaster University, Hamilton, Ontario, Canada. For Penn State, the fuel elements are swimming-pool plate types with 10 plates per element. For the Florida training reactor, the fuel elements are a bolted-plate assembly type. The McMaster University swimming-pool research reactor will use 18 plate type elements. Sylvania-Corning's Hicksville, L.I. facilities are working on these jobs.

As a basis for contract negotiation, the USAEC has accepted the design study phase of a proposal from the Puerto Rico Water Resources Authority for a boiling water nuclear power plant incorporating a nuclear fired superheater to increase steam temperatures. The Authority intends to engage General Nuclear Engineering Corp., Dunedin, Fla., to perform the study. Cost to the Commission for the design study is estimated at $250,000.

Contract for the purchase of a TRIGA-type nuclear reactor has been signed by University of Minas Gerais, Belo Horizonte, Brazil, with General Atomic division of General Dynamics Corp. The reactor, to be made at General Atomic's San Diego, Calif., facility will be a below-ground version of this particular reactor type. It will have a continuous power level of 30 kw with intermittant operation at 100 kw. School of engineering of the Brazilian university will use the reactor in its studies.

Contracts placed by the U. K. Atomic Energy Authority, in connection with the advanced gas cooled reactor project at Windscale, have been awarded Whessoe, Ltd., Darlington, for reactor vessel; English Electric Ltd., Rugby, for turbo-alternator and associated equipment; International Combustion Ltd., Derby, for heat exchangers; Babcock & Wilcox Ltd., London and Renfrew, for containment building; Hick Hargreaves, Ltd., Bolton, for dump condenser; Mather and Platt, Ltd., Manchester, for feed pumps; and Whatlings, Ltd., Glasgow, for building and civil work. The Authority has also retained Ewbank and Partners, Ltd., London, as consultants on the turbo-alternators and that part of the steam plant within the turbine hall.

PROPOSAL MODIFICATIONS:- Conditions of the third round of the USAEC's Power Demonstration Reactor Programs (PDRP) have been modified by the Commission to conform with legislation enacted by the last Congress. This required the Commission, before it entered new cooperative agreements under the PDRP, to invite proposals for reactor projects regarded technically desirable for construction. Original terms of the Third Round did not place any limitation on the type or size of power plants that might be proposed.

ATOMIC ENERGY PATENT DIGEST...

ISSUED November 11, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS (All

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Scaler, Model 49-21, uses completely transistorized digital readout system and non-overloading amplifier. Decades and register are electrically reset with provision for local or remote operation. Amplifier is said to have sensitivity of 1 mv with gain of 1000. --Radiation Instrument Development Laboratory, Inc., 5737 So. Halstead St., Chicago 21, Ill.

Twin-film Service, new film badge method of using two films in each badge, is said to make it possible to measure weekly radiation exposure down to 1.6 milliroentgen per week; this is a measurement 13 times more sensitive than is practicable with weekly film badges of one film. In Twin-film Service, one film is replaceable each week and is processed and evaluated like a conventional weekly film badge service. The second film, which is left in the badge for 13 weeks, then processed and evaluated, discloses whether there has been an exposure in excess of 20 milliroentgens in the 13 week period. --Tracerlab, Inc., Waltham, Mass.

PRODUCT NEWS:- Mallinckrodt Chemical released last week 330-lbs. of enriched uranium oxide, ceramic grade, to the Norwegian government's New York representative. The material, consisting of 131,481 grams of uranium enriched to 1.5% by 1984 grams of uranium-235, was loaded aboard ship, consigned to Joint Establishment for Nuclear Energy Research, Lillestrom, Norway. Acting as purchaser from Mallinckrodt was the USAEC, which then transferred shipment to Norwegian government. The fuel was prepared at Mallinckrodt's Special Metals division plant, Hematite, Mo., which solely produces uranium compounds of all enrichments from uranium hexafluoride.

Magnesium fluoride slag containing small amounts of normal uranium is now offered to U. S. and foreign users by the USAEC for $26.00 per kg of contained uranium, plus $25.00 handling charge for 550-lb. drums. The material, a byproduct of normal uranium production, with about 3% uranium, is in the form of a grayish powder; it will all pass a 20-mesh screen, and about 40% will pass a 100-mesh screen. Full information may be obtained from S. R. Sapirie, Manager, USAEC, Oak Ridge.

Two changes have recently been made in its special nuclear material regulations by the USAEC. One amendment (10 CFR 70, published in the Federal Register Nov. 18, 1958) provides for additional licensed uses in the U.S. of uranium-233, 235 and plutonium. The other amendment (also to 10 CFR 70, and published in the Federal Register Nov. 11, 1958) provides that licensees authorized to possess fissionable material in amounts which could produce conditions of accidental criticality must maintain adequate alarm systems and emergency plans to evacuate personnel. Falling in this category are those permitted to possess more than 500 grams of contained uranium-235; 300 grams of plutonium; or 300 grams of uranium-233. (USAEC domestic licenses in effect Sept. 30, 1958 totaled 4,075. During that month, 286,100 grams of uranium-235; 5.4 grams of uranium-233; and 4,476 grams of plutonium were allocated. Of the total allocation of uranium-235, 15,000 grams went to commercial fabricators of fuel elements; 1,000 grams were for use as reactor fuel; and 270,100 grams were for use in critical experiments. Of the total plutonium allocation, 4,000 grams were included in plutonium-beryllium neutron sources to be used in well logging activities.)

MANUFACTURERS' NEWS:- Special materials uniformly dispersed in a matrix alloy, as required in certain nuclear applications and experiments, can now be furnished by Sintercast Corp. of America, 134 Woodworth Ave., Yonkers 2, N.Y. The company is able to produce many of these special composite materials through the use of advanced techniques in powder metallurgy. A recent custom component it supplied was a 304 stainless steel matrix with a uniform dispersion of 0.52% samarium oxide held to 5.3 milligrams per square inch, plus or minus 0.2 milligram. It was supplied as foil 4" x 12" x 0.008" plus or minus 0.0005" thick.

New supplier of depleted uranium salts is S. W. Shattuck Chemical Co., Denver, Colo. Shattuck, with Davison Chemical who were first to offer the salts, look for a market as colorant for ceramics which prior to World War II took some 200 tons per year. (Restriction on sale of uranium for non-nuclear uses was removed June, 1958, by the USAEC; it had been in effect since 1942.)

MANUFACTURERS' LITERATURE:- Counter tubes, neutron detectors, and apparatus for nuclear and other applications are described in new catalog of Anton Electronic Laboratories, Inc., 1226-38 Flushing Ave., Brooklyn 37, N.Y.

High purity vanadium metal, offered by Vanadium Corp. of America, 420 Lexington Ave., New York 17, N.Y., is described in that firm's new leaflet "Vancoram High Purity Vanadium Metal" available on request from the company.

ATOMIC ENERGY PATENT DIGEST...

ISSUED November 11, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Radiation detector. C. F. Hendes, inventor. No. 2,860,254 assigned to North American Phillips Co., Inc., New York, N. Y. (2) Radiographic camera. J. L. Tumath, inventor. No. 2,860,255 assigned to Radioactive Products, Inc., Ferndale, Mich.

ISSUED November 11, 1958 to GOVERNMENTAL ORGANIZATIONS:- (1) Process for utilizing organic orthophosphate extractants. R. R. Grinstead, inventor. No. 2,860,031 assigned to USAEC. (2) Wet method of preparing plutonium tribromide. N. R. Davidson, E. K. Hyde, inventors. No. 2,860,032 assigned to USAEC. (3) Isotope conversion device and method. E. P. Wigner, L. A. Ohlinger, inventors. No. 2,860,093 assigned to USAEC. (4) Ratio computer. R. F. Post, inventor. No. 2,860,241 assigned to USAEC. (5) Differential pulse height discriminator. L. D. Test, inventor. No. 2,860,242 assigned to USAEC. (6) Gas discharge devices. S. Jefferson, inventor. No. 2,860,269 assigned to USAEC. (7) Pulsed ion source. F. C. Ford, S. G. Zizzo, J. W. Ruff, inventors. No. 2,860,270 assigned to USAEC. (8) High current linear ion accelerator. R. E. Hester, D. O. Kippenham, W. A. S. Lamb, inventors. No. 2,860,279 assigned to USAEC.

ISSUED November 18, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Precision limiter for a radiation-type gauge. S. Bernstein, inventor. No. 2,861,189 assigned to General Electric Co., New York, N.Y. (2) Coal testing method with X-ray radiation. H. Dijkstra, inventor. No. 2,861,188 assigned to Stamicarbon N. V., Heerlen, Holland. (3) Radiation detector. S. Kuo Shu Chao, H. F. Stoddart, inventors. No. 2,861,191 assigned to Baird-Atomic, Inc.

ISSUED November 18, 1958 to GOVERNMENTAL ORGANIZATIONS:- (1) Separation of neptunium from plutonium by chlorination and sublimation. S. M. Fried, inventor. No. 2,860,948 assigned to USAEC. (2) Plutonium separation method. L. J. Beaufait, Jr., F. R. Stevenson, G. K. Rollefson, inventors. No. 2,860,949 assigned to USAEC. (3) Method of preparing metal halides. A. V. Henrickson, inventor. No. 2,860,950 assigned to USAEC. (4) Horizontal boiling reactor system. M. Treshow, inventor. No. 2,861,033 assigned to USAEC. (5) Neutronic reactor shield and spacer construction. E. P. Wigner, L. A. Ohlinger, inventors. No. 2,861,034 assigned to USAEC. (6) Control rod. W. H. Zinn, H. V. Ross, inventors. No. 2,861,035 assigned to USAEC. (7) Electronic pulse scaling circuits. E. H. Cooke-Yarborough, inventor. No. 2,861,201 assigned to USAEC. (8) Magnetometer. M. A. Leavitt, inventor. No. 2,861,242 assigned to USAEC. (9) Production of metals and their compounds. T. V. Arden, F. H. Burstall, G. R. Davies, R. P. Linstead, R. A. Wells, inventors. No. 2,860,956 assigned to USAEC.

PATENT NEWS:- Some 60 patented inventions, owned by the U. S. Government and developed in the course of USAEC-sponsored nuclear research, have now been made available for royalty-free (non-exclusive) licensing by the Commission. This makes a total of 1,591 such Commission-held patented inventions released for industrial use. Abstracts of descriptions of this latest group may be obtained from USAEC, Washington 25, D.C.

Five applications have been filed by Ala M. Tabor, Hurst, Tex., with the USAEC's Patent Compensation Board for an award based on five pending applications covering a device for "nuclear explosion scanning".

Preliminary German patent application DAS 1,032,238 of Deutsche Gold & Silber-Scheideanstalt, Frankfort, discloses new method of reducing hexavalent uranium solutions to tetravalent uranium sulfate. Process involves reduction with elemental sulfur at 250 to 200 deg. C. of the hexavalent uranium solution in sulfuric acid; the tetravalent uranium sulfate is then extracted with water.

PEOPLE...in nuclear energy work...

Francis K. McCune has been elected president of Atomic Industrial Forum, Inc., industrial trade association. Mr. McCune is vice-president of General Electric Co., and general manager of its Atomic Products Division..... Edwin Peters has been appointed sales and service engineer for Radiation Counter Laboratories, Skokie, Ill., and will cover the states of Washington, Oregon, and Northwest Idaho.....

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

November 25, 1958